



Grain

OCTOBER, 1944

Waterproofing

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GRAIN elevator and processing plant superintendents who are in charge of their properties naturally know more about their own problems than politicians and paint manufacturers.

I believe the general problem of grain plant waterproofing is just as important, if not more so, than some of the other problems with which your industry has to contend. In looking over some of these other problems, it becomes quite apparent that the presence or absence of moisture has a distinct bearing on some of them.

Your organization's journal has at various times carried interesting and detailed information about dust explosions, farm storage of grain, handling of damp and dirty grain, the difficulty of dealing with oil coated wheat, the heating up of damp wheat, and the spoiling of grain products due to fungus growth. This is mentioning only a few of the problems, but certainly in all cases, with the possible exception of dust explosions, you are dealing with moisture and its effect.

For further evidence that moisture is an important factor in the grain industry, one need only look at the U. S. grain standard specifications which include moisture

percentages for the various grades of all grain products. The amount of investigational work that has been done to develop a satisfactory method for the determination of moisture in grain further emphasizes the importance of maintaining optimum moisture percentages in such products.

High Moisture Content

IN considering what little information the paint industry has about these general problems, it was the one dealing with the spoilage of wheat when stored at moisture contents above a certain optimum point that indicated to us that something more than the preservation of concrete surfaces is involved when exterior waterproofing of grain elevators is accomplished. Some time ago, Dr. R. K. Larmour, of the Saskatchewan University, made the following statements:

"The spoilage of wheat when stored at moistures of 15% or higher is due principally to the germination and growth of moulds. With wheat at high moistures, these fungi grow freely, producing heat. The temperature of the mass of grain increases with increase of fungi. Any substance which will effectively inhibit the germination of the spores and their subsequent growth will prevent heating of damp wheat."

The conclusion we draw from this discussion by Dr. Larmour is that there is a distinct need for moisture control in the storage of wheat which will keep the moisture content at the approximately safe

"GRAIN"

Published monthly on the 15th.
Publication Office, 2800 Chicago
Board of Trade, Chicago 4, Ill.
Phone WABash 3111-2; 8126-7-8-9.

Subscription price \$1.00 a year;
foreign \$2.00; single copy 15c.
Editor and Business Manager—

Dean M. Clark

New York Representative, K. C.
Pratt, Inc., 50 East 42nd Street,
New York 17, N. Y. Phone MUrray
Hill 2-3730.

GRAIN



Your Grain Plant

By S. N. RHUE
Before Superintendents' Society

limit of 14% or lower. This moisture control problem in the grain industry, therefore, focuses the attention of the paint manufacturer more than ever on the waterproofing of exterior concrete elevator surfaces. However, the paint manufacturer knows very little about this apparently important phase of the grain storage problem and he is, therefore, only qualified to talk about waterproofing from the standpoint of concrete deterioration, preservation and decoration.

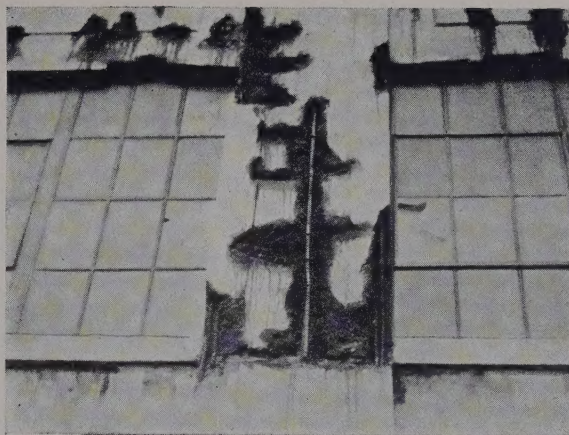
Patent Medicine Cheaper

THE exterior waterproofing of concrete surfaces has been placed in the same category as old-time patent medicine. Patent medicine bears the same relationship to well conceived and experienced medical practice as a waterproofing job done by inexperienced workmen bears to one done by experienced operators. An exterior waterproofing job is a complicated procedure and the necessary steps for successful completion of the job can only become known after practice and experience has established the fundamental details.

The sale of patent medicine is accomplished by glamorous promotion and is seldom based on anything but idle claims. The public uses patent medicines because they are cheaper than expert medical advice. Many contractors who claim to have much experience in the reconditioning of exterior concrete surfaces and who are usually lowest in price when jobs are being estimated are in the same class with patent medicines. Too much emphasis cannot be placed on the necessity for having this important reconditioning job done by the most

Bring Out The Gypsy?

Doesn't our front cover this month bring out the gypsy in you, give you the wanderlust, and whet your appetite for some good old hunting out among the corn? Even though ODT says to stay home and handle all your corn in carlots only, we thought Photographer Louis C. Williams—plus our adept engravers—really did a job that would hit a happy chord with our readers . . . And by the way, if you're a camera addict why not send in some contributions? They'll be welcome.



experienced contractors, even though the ultimate cost will be considerably greater.

Cancer

THE average concrete elevator may stand 10 to 15 years before any consideration is given to the fact that disintegration and crumbling is causing serious damage. Surely at the end of this time, these buildings merit the name of "forgotten structures."

The older the elevator is, the more rapid the deterioration becomes. Typical indications that disintegration is occurring consist of small and large cracks throughout the surface area, soft seams, surface spalling, honeycombs, exposed steel and natural wear.

The causes of this apparent disintegration are quite evident and well known. Access of moisture to unprotected concrete causes alternate freezing and thawing, and because of this continued action over a period of years, the variation in expansion and contraction causes the formation of small and large cracks. Moisture getting into these cracks then causes corrosion of the steel framework, and it is not long before the elevator owner is confronted with the familiar condition known as "cancer." This cancerous condition is a progressive formation of corrosion on steel parts, with the eventual disintegration of the concrete surface inevitable.

Carelessness in construction is another one of the common causes for early exposure of steel framework to corrosive influences. If properly constructed, the steel framework of an elevator should be protected with a 3 inch layer of concrete. However, too many times the pouring of this concrete is taken for granted. Improperly mixed concrete contains a large proportion of aggregates.

These aggregates become more familiar to us when we describe them as small or large balls of improperly mixed material. These get behind the steel framework and bulge it or push it out nearer to the surface of the concrete covering so that in many cases instead of having a 3 inch pro-

TECTIVE layer, we have a 1 inch protective layer. This thin layer of concrete is insufficient to provide maximum protection for the steel frame.

Unequal Loading

ANOTHER of the well known causes for large and small cracks in exterior concrete surfaces is that of unequal unloading of the elevators. This failure in a great many cases is due to the manner in which the elevator has been ordered constructed. I have in mind one elevator which consists of 18 bins or tanks, all set on the same foundation. Loading these bins unequally or loading the individual bins on the end of the line while those in the center of the line are empty has resulted in cracking and bulging of the foundation. The possibility of this failure could have been materially decreased if each bin or tank had been set on its own foundation.

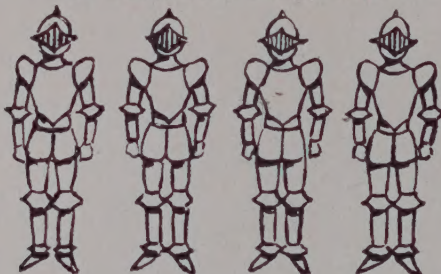
Another one of the common causes for concrete disintegration is again due to improper construction methods. Pouring concrete seems like a relatively simple operation, but when poured in sections, the operation is always accompanied by the formation of a scum or a pulpy gelatinous fluid which forms on the top of this poured section. When the next section is poured directly on this, the bond between these two sections is very poor and always results in a seam that is soft and subject to very early disintegration. The experienced operator will always cut this scum away by thorough wire brushing so that the succeeding concrete pours can bond thoroughly to the previously poured section.

These are the most common causes for the disintegration of exterior concrete surfaces. There are others, but the above description of these few serves to prove the point that too much care cannot be exercised in an effort to control the action of these disintegrating forces. One need only investigate the methods ordinarily used for repairing defective surfaces due to the above causes in order to satisfy himself that it would have



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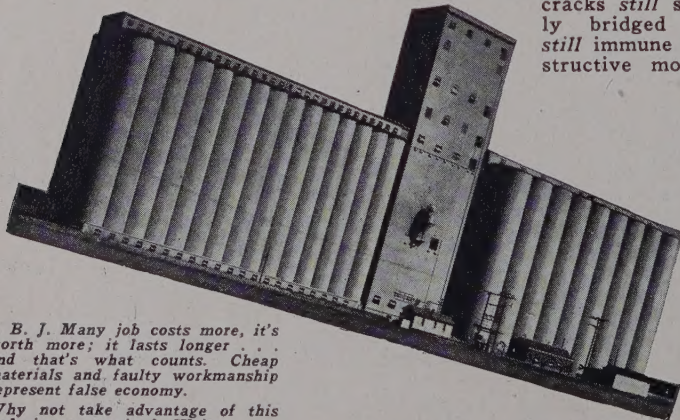


What permits seepage of moisture that causes elevators to deteriorate? *Cracks* due to excessive movement.

To stop seepage and *keep* it stopped, cracks must be bridged with weather-proofing material that has proper *g-i-v-e*, sufficient elasticity. What's *more*, this protective coating must be built up to substantial thickness to bridge cracks *permanently*.

How *many* coats does it require . . . one, two, three or more to do the job as it should be done? There's only one answer to that . . . **RESULTS**.

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been far more economical to exercise proper care in the construction and protection of the elevator before repairs became necessary.

Just Like a Girdle

CARELESS methods and cheap priced waterproofers who claim to know much about the repairing of concrete have done most to place this operation in the patent medicine class. The one thing contributing most to this condition is the use of inelastic patching materials. Large cracks are always cut out to remove the disintegrated portions of the surface. These cuts should be made at right angles or nearly so and the cut-outs then filled with the non-shrinking cement into which a certain amount of iron oxide has been incorporated, depending on the size of the patch. The soft seam caused by the improper pouring of concrete must be dealt with in the same way.

When dealing with small cracks, the choice of a proper mastic cement controls the ultimate success of this operation. Only experience can dictate what this cement should be.

Spalling, probably more familiarly known as "sloughing off" or "scaling away," of concrete surfaces may either be due to corrosion of the steel frame or the improper pouring of the concrete. Corroded steel that has appeared on the surface must either be cut out entirely or the concrete must be removed behind it so that it may be pounded back into position after which the proper 3 inch protection of concrete can be applied.

These facts all serve to show that protecting the surface of what is now the "forgotten concrete structure" would not only have resulted in an enduring good appearance, but it would have made unnecessary the expense of major repairs.

Moisture Permeability

AVOIDING these above described costly major repairs simply means that after a new exterior concrete surface has properly aged for approximately ten months, it should be coated annually with a properly designed exterior waterproofing paint. If this has not been done and major repairs have become necessary, protecting the patched areas and preventing further disintegration become important problems which can only be solved by waterproofing.

Concrete chimneys, storage bins, bridges, abutments and stucco homes are but a few of the surfaces upon which a waterproofing system can be used to advantage.

Permeability means the ability to permeate or pass through pores. Moisture permeability as it relates to a waterproofing system means the ability of moisture to pass through dried paint film outward, but not inward. This term "permeability" is intimately involved in the study of the exterior durability of all paint types, no matter what surface is concerned—

concrete, wood or any other. On any surface we are concerned about keeping water out, but in keeping it out we must be equally concerned about providing for the passage of water through from the back of the dried film in order to prevent blistering and peeling. There are many conditions which will permit moisture to get back of a paint film and if ready passage can be provided through the film, danger of peeling is considerably decreased.

Any oil paint, varnish or enamel will waterproof a porous surface to a considerable degree, but the necessity for the slow elimination of moisture from behind the dried paint film makes the use of a specially formulated paint product for this purpose extremely important.

Determining Permeability

IN order to determine as accurately as possible what the permeability of a waterproofing system is, we have used a rotating wheel, constructed of individual compartments

ACCIDENTS HELP THE AXIS



so that any type of panel could be attached. Under each panel an air space was provided and in each air space provision was made to insert a porous pad holding a weighed portion of water.

The wheel rotated so that at regular intervals the exterior of each panel came into contact with ultraviolet light and water. Each panel, therefore, was exposed to moisture from the inside out and moisture from the outside in. Check panels were also attached to compartments without the pad so that only the outward-in passage could be determined, exclusive of the inward-out passage.

This method showed that water passed out through the film in spite of the fact that water was in constant contact with the exterior of the film.

Another method for determining permeability makes use of circular concrete panels. These small circular panels, 3.5 inches in diameter by ¼

inch thick, were cast in tin plated rings with a 3 to 1 concrete mixture of sharp, medium-sized sand and Portland cement. Upon thorough setting and drying, the top surfaces of these panels were coated with the various waterproofing systems.

By carefully sealing water in a small tin plated compartment under the bare concrete surface in one case, and under the painted surface in the other, the rates of moisture permeation in both directions, through the waterproofing system, were accurately determined by measuring the losses in the weights of the sealed systems every 24 hours.

It was found that the rate of outward permeation was double the inward, or 1 gram per sq. ft. and ½ gram per sq. ft. respectively, in 24 hours.

Over 10,000 sq. ft., this means a daily outward diffusion of 22 lbs. of water from moist concrete in dry weather, and a maximum absorption of only 11 lbs. of water through the paint film in extremely wet weather.

Since the outward permeability was approximately double the inward permeability and since in most climates there is a preponderance of dry weather, a properly waterproofed concrete surface undoubtedly dries out slowly and uniformly and remains so, thereby practically eliminating the disintegrating forces caused by rapid and large changes in moisture content which are known to break down the strongest natural stone formations.

Properly designed waterproofing systems, therefore, seem to uniquely combine waterproofing with controlled permeability, allowing more water to come out than to go in and allowing sufficient time for uniform distribution of absorbed moisture throughout the concrete, thereby minimizing failures.

In this connection, it is rather interesting to note the relative rates of permeabilities for so-called exterior water base paints and exterior oil base paints. When this investigation was made, three surfaces were compared: One was a bare concrete surface, one a cold water painted surface, and one an oil paint coated concrete surface. The same surface area and the same water exposure period was used in all cases. The following comparative figures were obtained:

Relative Rates of Permeabilities For Exterior Cold Water Paint and Exterior Oil Base Paint

	Cold water	No	Oil base
Direction—	paint	coating	paint
Outward ...	1.38	1.52	0.10
Inward	1.37	1.50	0.05

It is apparent, therefore, from these results that a coating of exterior water paint merely impedes the penetration of moisture into concrete in contrast to the waterproofing effect obtained with oil base paint.

**It's
TRUE!**

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LESSONS in safety are most easily taught when they are brought to life by competition. That's why the Society of Superintendents sponsors an annual safety contest for its members.

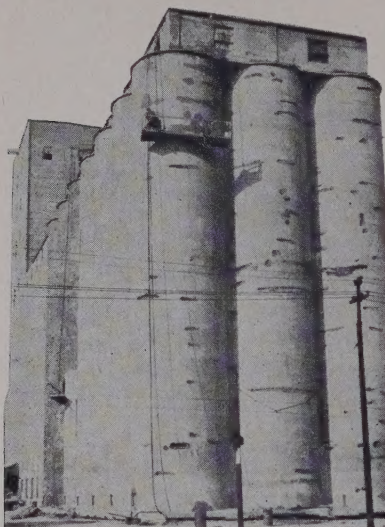
The interest aroused by the contest, whether you win an award or not, furnishes the means whereby your accident record can be controlled. Everyone wants to win. Everyone does.

Although trophies are awarded only to winners the real victory lies in the widespread reduction of accident losses that the active interest in safety matters achieves. Put your plant into competition and watch the spirit grow. Write for details.

Society of Grain Elevator Superintendents

Board of Trade

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The big market for exterior waterproofing systems has always been in California and in Florida. The sun and rain action in these territories is especially severe and for this reason the durability required in these areas was taken as the standard. The market for a waterproofing system is now admittedly greater in sections other than the Southeast and on the Pacific Coast.

The reason for this is that industry as a whole is at last coming to the realization that concrete construction is not indestructible and that unless it is protected after the normal aging period of 10 months, costly major repairs are unavoidable.

Cost of Preservation

REPAIRING and waterproofing costs become very interesting when concrete elevator surfaces of varying ages are considered. The concrete surface that has normally aged for 10 months can be waterproofed for approximately 15c per sq. ft. because no extensive repairs are required. The concrete surface that has stood approximately 10 years requires extensive repairs and the cost of waterproofing is, therefore, approximately 25c to 40c per sq. ft., 10c to 25c of which covers the repair cost and 15c the covering cost.

The concrete elevator surface that has stood 25 to 30 years requires more extensive repairs and the approximate cost of waterproofing is 35c to 50c per sq. ft., 20c to 35c of which covers the repair cost and 15c the coating cost. The size of the average tank or bin is 2,500 to 4,000 sq. ft., and the size of the complete elevator ranges from 40,000 sq. ft. to 400,000 sq. ft. of total exterior surface area.

Taking the size of the average tank or bin at 2,700 sq. ft., the following are the approximate waterproofing costs for elevators that have aged 10 months, 10 years and 25 years, respectively: 10 months—\$405; 10 yrs. @ 25c—\$675; 10 yrs. @ 40c—\$1080; 25 yrs. @ 35c—\$945; 25 yrs. @ 50c—\$1350.

These figures are on the basis of only a single tank or bin area. If the costs are figured on the basis of a 40,000 square foot area, which represents that of one of the smallest elevators in the country, these comparative figures become more impressive. They are as follows:

10 months, \$6,000; 10 years at 25c, \$10,000; 10 years at 40c, \$16,000; 25 years at 35c, \$14,000; 25 years at 50c, \$20,000.

Repairing and waterproofing costs, therefore, approximately double in 10 years and almost triple in 25 years.

Risk of Spoilage Incomparable

THE cost of waterproofing need only be compared with the cost of completely ruining a bin of wheat in order to prove the economic value of a repairing and waterproofing program. Again taking the average size

bin of 2,700 sq. ft. exterior surface area and figuring the repair and waterproofing cost of a 10-year-old surface at 25c per sq. ft., we arrive at a waterproofing cost of \$675. This bin would have a capacity of approximately 25,000 bus.

If the contents of such a bin were completely ruined by moisture, the loss would be over \$25,000. Even taking into consideration that it perhaps is quite unusual to have the grain contents of any bin so completely spoiled that there would be no salvage value, this comparison shows without question that waterproofing of a grain elevator is a safety measure which will eventually save an operator a considerable amount of money.

The cost of completely waterproofing an elevator is sometimes considered so high that only a part of the waterproofing program can be carried through. This is certainly false economy. I have in mind an elevator on which 5,000 lineal feet of cracks developed. These cracks were patched in the proper way and the entire exterior surface left unprotected. Repairing these cracks was done at the rate of \$5.00 per lineal foot so that the cost of repairing the entire 5,000 lineal feet was \$25,000.

KID VICTORY



The entire exterior concrete surface of this elevator is about 200,000 sq. ft., and to apply the covering coats to complete this waterproofing operation would have cost \$30,000. Adding this to the \$25,000 patching cost, we arrive at a complete waterproofing cost of \$55,000. Dividing this cost by the total exterior surface area of 200,000 sq. ft., we get a cost per sq. ft. of 27½c.

If this complete waterproofing job had been done while the repair contractor had his tools, men and scaffolding in position, a saving of approximately \$1,500 could have been made. This, however, is a small amount, and it is not the important point to be considered. These unpro-

tested exterior concrete surfaces will eventually deteriorate again and cracks may develop next to the patched areas that have just been completed. Periodic repairs will be necessary, and it won't be very long before the \$30,000 covering cost will have been more than offset by the cost of these periodic repairs.

Advertising Value Overlooked

BEFORE concluding my remarks, I would like to say just a few words about the decorative value of painting the exterior surface of a concrete elevator. I like to think of the exterior of a building in the same way that any company or corporation thinks of the advertising value of a sign. Advertising value is measured by color brightness. The longer the sign maintains its color brightness, the longer it retains its advertising value. Certainly, the unsightly appearance of cracked and stained grain elevators could easily fall into the classification of poor advertising. Repairing and waterproofing these surfaces with proper coatings would surely give them eye value, and eye value means public comment.

New Form W-4 Required

Under the "Individual Tax Act of 1944" you must get a new withholding exemption certificate (Form W-4) from each employee by Dec. 1. Then, you will have to refigure the amount of tax to be withheld from the first payment of each employee's 1945 wages. This is going to mean sweeping changes in your payroll records, which you should prepare for now.

New Forms By Nov. 30th

Form W-2 has been revised so now wage earners and salaries workers will be able to avoid computing their 1944 income taxes through the use of a new quadruplicate withholding receipt in accordance with the tax simplification law for those making less than \$5,000 a year and not more than \$100 from other sources. Income and exemptions on their receipts is all that is needed now, instead of filling out the old Form 1040.

Soy Plant Fire

Cargill's soybean plant and feed mill at Cedar Rapids was destroyed by fire on Oct. 11, however, the elevator and warehouse were saved. The plant was closed down for repairs at the time of the \$200,000 night loss. Eight railway cars were pulled to safety by trainmen working in a shower of sparks. Rebuilding plans are under way.

Bonds

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CHEMICALS INDISPENSABLE
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It Takes A Heap Of Moisture To Grow A Pound of Wheat

By MAJOR H. G. STRANGE

Searle Grain Co., Ltd., Winnipeg

The Searle Grain Company, of Winnipeg, has conducted detailed investigations into the relationship between annual rainfall and annual yields per acre of wheat in the three prairie provinces, using records which for some points and areas go back 50 years or more. The results of these studies confirm closely the conclusions reached by Messrs. Barnes and Hopkins of the Dominion Experimental Farm, Swift Current, some of which important information and principles may be stated or interpreted as follows:

(A) Under average Western Canadian conditions, it takes from 1,000 to 2,600 pounds of water to produce one pound of grain. Or, in other words, it requires from 30 to 80 tons of water to produce a bushel of wheat.

(B) An average summerfallow conserves probably about 5 inches of moisture. On an average "summerfallowed" field a total of 14.5 inches of precipitation should normally be available for the use of the growing crop.

(C) Winter snowfall usually adds but little to moisture reserves, the reason being that usually the ground freezes before the winter snows occur, then the snows melt, run away or are evaporated before the ground thaws in the spring.

(D) The roots of the wheat plant extend, under ordinary conditions, to a depth of between 5 and 6 feet in the soil.

(E) By harvest time, a crop of wheat, whether produced on stubble or on "summerfallow," has usually completely exhausted every scrap of available moisture in the soil to the depth of the roots.

(F) The belief, held quite generally, that moisture moves continually upwards in the soil by capillary action, has been found to be incorrect. On the contrary, it is discovered that the movement of moisture upwards to the surface is so exceedingly slow that it may be considered to all intents and purposes to be negligible.

(G) Rain falling upon the soil tends to move fairly quickly downward, the depth of penetration being determined by the amount of rainfall and the state of the soil at the time the rain occurs. Rain penetrates quicker when the soil is moist than when it is dry. The downward movement apparently continues, becoming slower with depth, but there is a tendency for the area penetrated to become equally saturated quite quickly.

(H) Once rainfall has penetrated the soil 3 or 4 inches, that is, to a level below the usual depth of disturbance by implements, atmospheric conditions seem unable to remove the moisture. It is then apparently only given up by the soil through the medium of the roots of growing plants.

(I) A substantial percentage of the rain that falls is quickly evaporated into the atmosphere. This applies par-

ticularly to showers of less than a quarter of an inch. So a certain amount of rainfall is lost by evaporation with every rain. Loss from evaporation is one of the important reasons for relatively low yields of crops.

(J) Under average farming conditions, weeds also utilize a substantial percentage of moisture that otherwise would make wheat or other grain. On the average weeds steal such an amount of moisture from the soil that the yield of wheat, for instance, is reduced by weeds from 17 to 30%.

(K) Contrary to general opinion, wheat plants do not seem to be injured directly either by hot temperatures or drying winds. It is the lack of moisture, or the drought, that damages the plant. It has been noted, for instance, that under very adverse conditions of heat and dry winds, crops that are irrigated do not suffer.

(L) Also contrary to general opinion, hot drying winds do not seem to "lap up" moisture from the soil, the reason being that during such periods the top two or three inches of soil is already dry, and moisture that has penetrated below that depth is apparently safe from the action of heat or winds.

(M) Until the wheat plant is from 4 to 6 inches high, it uses relatively little moisture. From this time on, until about the last week in June, the daily use increases. From April 1st to June 30th, the plant normally has

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... says Lois Donaldson of Boone Valley Coop. Association, Eagle Grove, Iowa. "It takes no specialized knowledge to make moisture tests with it."

Besides, the Steinlite is FAST. An experienced operator can complete a test on grain in one minute; almost any operator in two or

three minutes. It is ACCURATE; checked against standard government oven methods.

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used much less moisture than on the average falls. Therefore, a reserve has been built up for use later.

From the end of June, however, until July 30th, the use of moisture by the plant proceeds at an almost incredible rate, the crop during this short period utilizing all the moisture the soil has previously stored up, and the yield per acre appears to be, in general, in proportion to the amount of moisture that has been available to the crop. From all this we learn that a deficiency of rainfall up until, say the middle of June, is not too serious, provided that from the middle of June and for the balance of the season much better than average rains occur.

WORLD WHEAT PRODUCTION in 1944, according to present prospects, will be the largest since 1940, when production was estimated at 6,000 million bushels.

GRAIN ACREAGE sown in the Soviet Union during 1944 is reported to be considerably larger than in 1943.

CHINA is expected to harvest its largest food crops in several years, according to the U. S. office of foreign agricultural relations.

INDIA'S WHEAT CROP is placed at 462 million bushels in the final official estimate, compared with last year's final estimate of 402 million bushels. This year's crop is one of the smallest in recent years.

EUROPE will need less of Canada's wheat in liberated areas than had been anticipated, according to information assembled by Dominion Government sources.

CANADIAN AND U.S.A. WHEAT SURPLUSES may be drawn upon to supply countries which normally look to Australia for their requirements, state Ottawa officials. Drought conditions have cut the Australian crop to the lowest level since 1914.

AUSTRALIAN WHEAT PROSPECTS have been reduced by further deterioration over wide areas, and estimates of production now range as low as 50 to 60 million bushels.

ARGENTINE SHIPMENTS OF WHEAT AND FLOUR since the first of the year show total 75 million bushels, compared with 49 million bushels during the same period a year ago. The remaining wheat surplus is estimated at 188,230,000 bushels compared with 150,784,000 bushels a year ago.

ARGENTINA estimates the 1944 rice crop at the record figure of 8,559,000 bushels, which should more than fulfill domestic requirements.

THE FRENCH FOOD SITUATION is reported gradually improving, although bread is still scarce in some parts of the country.

ITALY'S NEW WHEAT CROP is only 7% under pre-war home requirements, and it is expected that rationing will not be too drastic in liberated areas.

HOLLAND, reports Broomhall, has been left short of flour and essential foodstuffs by unreasonable confiscation of foodstuffs by the Germans in many parts of the country.

COLOMBIA has suspended the measure limiting imports of wheat and flour, in view of the small stocks on hand and the unfavorable prospects for the new wheat crop.

HONDURAN CORN PRODUCTION is estimated at 4.8 million bushels, the largest crop reported in the past decade. At this level the crop is expected to fulfill domestic requirements.

GERMANY has lowered the weekly bread ration by 175 grammes.

Grain Exports Up For A Change

Export grain unloaded at tidewater during September totalled 3,151 cars, compared with 2,842 the year previous—an 11% increase.

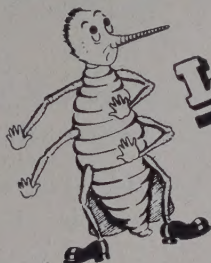
Can Help Situation

The extraordinary demurrage penalties now in effect are not aimed specifically at the grain handling and processing industry—even though the restrictions on the movement of wheat, flour and feed on account of the shortage of box cars are the most serious of the present war. All can hasten victory by speeding up the loading and unloading of cars wherever possible. The situation will not improve soon.

You can't steal second base and keep your foot on first.

He offered his new girl friend a Scotch and sofa; she reclined.

Even IN SHALLOW BINS THAT CANNOT BE TURNED YOUR GRAIN CAN HAVE THE **Larvacide** STANDARD OF PEST CONTROL



A Special Form known as
Larvacide 15-MIX

is applied by hosing or sprinkling onto grain surface. It quickly sinks into the grain mass, becoming a powerful gas with ample power to destroy egg life and larvae, along with adult insects, also to penetrate the grain berry to kill life within.

LARVACIDE 15-Mix is toxic to all granary insects, including the elusive mite. This form of LARVACIDE comes only in 50 gallon drums. Cost of treatment ranges from \$2.60 to \$2.75 for corn in good shape—wheat a little more.

For Grain That CAN Be Turned

use straight LARVACIDE. Costs only \$1.50—1.70 per thousand bushels ... lowest we know for effective pest control.

KILL RODENTS IN THE WAREHOUSE AND ELEVATOR

with **Larvacide**

Straight LARVACIDE comes in 25, 50, 100 & 180 lb. cylinders—also in handy 1-lb. Dispenser Bottles, fine for small jobs and rodent work. Each bottle is sealed in safety can, 12 to wooden case. Stocked in principal cities.

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INNIS, SPEIDEN & COMPANY, 117 LIBERTY ST., NEW YORK 6

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IT'S IMPORTANT THAT YOU REMEMBER



ONLY *One* FUMIGANT IS CALLED Weevil-Cide

Not all fumigants are known as Weevil-Cide, nor are all fumigants alike.

Weevil-Cide is a registered trade name . . . the distinguishing mark of a distinctive fumigant that has through years of extensive usage demonstrated its ability to continuously meet every fumigation requirement.

Weevil-Cide is safe and convenient in application. It leaves no bad odor, has no bad effect on grain treated. It is endowed with great and uniform killing power. It is economical and free from fire hazard.

There's only *one* fumigant that can give you Weevil-Cide results . . . and that *one* fumigant is Weevil-Cide.



THE **Weevil-Cide**
THE DEPENDABLE GRAIN FUMIGANT

COMPANY

1110 HICKORY STREET
KANSAS CITY, MO.

BUGS REAL THREAT TODAY

Millers' National Federation Offers Booklet

WHAT with manpower shortages, box car scarcity, priorities, OPA regulations, and other headaches, now it's bugs! As though there weren't enough distractions, the insect population seems to have sensed the critical situation and seized upon the opportunity to add their itchy touch to an already irritated atmosphere.

Not only that, reports the Millers National Federation, but indications are that all sources of infestation will prove more difficult to overcome this year than in by-gone times. The Federation offers a helpful booklet which may be had for the writing; their address is 309 W. Jackson, Chicago 6, Ill. They go on to say: "We are having a good many calls from millers about various aspects of the problem, most of them having to do either with customer complaints or with seizures by food officials. Incidentally, the number of seizures is only about one-fourth what it was last year, but the reduction is chiefly a reflection of other activity by pure food authorities rather than lack of interest in weevilly flour.

Must Keep Eternally at It

"INCREASED insect activities may be due to seasonal conditions, but it is also possibly due to results of labor shortage all along the line. Housekeeping practices in the mills have suffered in many cases from scarcity of help, the railroads are unable to clean freight cars as they should be cleaned for the transportation of flour; and the conditions in storage and users' warehouses have certainly not been bettered any by labor scarcity. Whatever may be the cause, the fact is that increased insect population is in evidence.

"While insect control methods in the mills are a vast improvement over those followed in the past, no matter how good a job is being done the miller is obliged to keep eternally at this work. In a year like this one it is doubly necessary to keep after the insect situation. For reference purposes, all millers should have a copy of 'Insect Control Manual for Flour Mills,' issued by the federation in 1942. This manual covers the practical methods of dealing with insect problems in the milling industry, including flour storage.

Box Car Treatment Problem

"CONTROL of grain and flour insects in freight cars is exceedingly difficult to maintain, especially under present conditions when the scarcity of cars makes it necessary to reload every one immediately upon unloading. The best known method of driving insects out of box cars is through blowing out by compressed air." [Ed.: Three of our fumigant advertisers have perfected box car fumigation techniques.]

"Pending general establishment of this practice, the carriers are showing greater willingness than in the past to pay for brushing weevil off of flour sacks at destination and for paying for fumigating cars at destination. It is also worthy of note that claims for loss growing out of weevil infestation acquired in transit are a good bit less difficult to collect than in the past," say the federation officials.

"Millers will be doing their customers a favor by promoting methods of keeping warehouses free of insects. Too many warehouse operators, flour distributors and users do not understand that weevil trouble is quite often due to their own lax methods. For this reason, as well as for others, there is no occasion for millers to assume liability for loss of flour after it has remained in the hands of a distributor or user. Most elements in the trade now understand this principle and customer claims are less in proportion than formerly was the case. However, in a year like this they are perhaps likely to increase," the federation adds.



Stored Grain Loses Vitamins

As much as a 50% loss is recorded in the vitamin A content of stored corn after three or four years, according to W. B. Combs of the Federal Grain Supervision Department in an address before the American Association of Cereal Chemists. Likewise the sugar content decreases in corn, barley, and oats held in storage, but increases in wheat.

Not only has his research established the fact that decreases in germination percentage results in long-time storage, but increases in fat acidity also follow. These two factors are, Mr. Combs points out, valuable indices of incipient deterioration not apparent from grade examinations using damaged-kernel percentage and odor determinations. Such valuation tests, he predicted, may possibly be incorporated in the official standards in the future. Milling and baking tests were also found to suffer by long-time holding.

PARTNERS IN A BIG JOB

By Gilbert P. Lane, Arcady Farms
Milling Co., Chicago

The healthy, well-adjusted person is an asset to democracy-in-action and each of us every day adds to or takes away something from the effectiveness of that action.

Take such a little thing as thoughtfulness for a new co-worker. Veteran employees, as ones who "know the ropes," can help adjust the new worker to his job by a simple interest in him as a person. It may not be their chore to teach him his work, but none of us can escape the responsibility of making him feel welcome—and a partner in the job we do together.

He (or she, of course) may be very young. Be tolerant, remembering that you, too, were once young.

Or your co-worker may be old—older than you, that is. Don't remind him of it. To be casually called "Dad" or "Uncle" hurts more than you'll know until someone does it to you, unthinkingly. Gray hair no longer means the scrap heap, unless a man has quit trying because he believed it did.

It's a big war, bigger than any dozen of us. But it's not so big that we can't add our bit to the forward drive to victory just by giving a pat on the back and a smile to those who march by our side.

Don't talk about what you're going to do—do it.



WHEN corn makes headlines because of wartime restrictions on its sale, most readers think of corn as food for humans and feed for livestock—particularly pigs—or as seed for planting. But direct consumption of corn in the form of meal, grits, corn flour and corn breakfast foods in 1943 was only about 65 million bus. out of a total production of 3,464,000,000 bus. Feed and seed uses accounted for 3 billion bus. A large part of the remaining 400 million bus. was required for industrial uses, many of them wartime indispensables, says WFA.

Cornstarch is the basic product for all industrial uses of corn. Cornstarch, variously treated, is going to the battlefield in explosives, penicillin, sulfa drugs, vitamin products, surgical dressings, adhesives, in textile finishes for clothing and shoes. It is used in printing inks, paper, rubber, asbestos, structural insulation board, gypsum board, including the V-boxes for overseas shipments to servicemen; also in shipping containers of all kinds and in fibrous glass cloth.

A BUSHEL of corn will produce 33 lbs. of cornstarch. And 33 lbs. of starch, treated chemically, will produce 37 lbs. of corn sirup or 25 lbs. of dextrin. Dextrin is used in making molds for castings, wood veneer glue, labels, stamps, and envelopes. Most corn sirup products are edible—confections, bakery goods, beer, ale, jams and jellies.

Cornstarch is used for the core binder in producing copper, magnesium, aluminum, or bronze castings and forgings; also for brass, steel, and iron. It is used as a fiber in converting bauxite to alumina; and in magnesium production. These and many other industrial war uses for about 5% of the corn production account for the special attention that has been devoted to the current year's corn crop.

A Ghostly Committee

For some years past a shadowy, almost ghostly, organization has been hovering around the fringes of the great international wheat industry. It was once called the "London Wheat Committee."

Years ago this committee drew up an international agreement intended to solve the world's wheat problem. The agreement was soon broken by almost all those who had signed it. The committee then fell back into the shadows and out of mind.

It is now apparently trying to take on new life, and is proposing once again that it should have entire control of the international wheat industry, set prices for producers and consumers, allocate amounts of wheat to be exported and imported by each country.

Such controls would be pure fantasy, and doomed to failure, just as

were the first efforts of the London Wheat Committee, and innumerable plans of the same kind that have been tried in the past.

Let it never be forgotten that controls, whether of price or of exports, are merely words for restriction of consumption, hence restriction of production, hence of reduced income to wheat growers.

It is time that the International Wheat Committee finally dissolved, and left the production of wheat to farmers, and its distribution between

nations to skilled and experienced merchants, all functioning within the healthy policies of free enterprise, free trade and free open markets.—Searle Grain Company, Ltd.

Food For Thought

Competition to make higher quality goods, to provide more satisfactory service, is beneficial and fruitful to all; but mere "cut-throat" price competition which tends to drive many, particularly the small merchant, out

A Tribute to the Grain Industry

Our train stopped at a small but important railroad junction on a warm day in the summer. It was a country town, such as you often see as you ride through the West of America. A small town, with a few stores and a railroad station and a post office. And the farmers with their wagons lined up to deliver their grain to the big grain elevator.

And this little scene took me back to another . . . to the day of primitive man who, as he acquired reason, found the value of the seeds of the grasses. And gathered the seeds and ate them, and then learned to mill them and cook them. And at last learned that the seeds could be sown and cultivated and thus they laid the basis of agriculture.

And now a new scene as Columbus returns to Spain from the journey to the New World. And he brings to Queen Isabella the treasures he has found in America. And then lays at her feet the golden treasure of maize, the Indian Corn, the greatest of all his discoveries.

Now the scene changes and the settlers are coming to America. They are building their cabins and tilling their new farms. They are planting the maize, the Indian corn. And they are planting the wheat and the oats and rye and barley they have brought with them into the New World.

The scene fades and a new one brightens. And the farms are larger and the crops are bigger and great elevators are built for the harvests; great elevators such as this one we see now, in the little farm town here on the railroad. And the loads of grain going into the elevators become torrents of grain, pouring over the nation; great driving floods of grain, pouring into the mills to be ground into flour and meal and grain foods; food to give strength to a mighty nation; grain for the needs of industry, grain for the feed of the stock farms, grain for the breakfast tables of the people.

How beautifully this growth of the grain industry portrays the spirit of America. The pioneer drops a grain in the ground and gathers the harvest, his natural profit. And he re-sows the seeds and they multiply over and over, and he builds him a place in a great nation. This is the principle of individual enterprise given to us by our fathers; the principle of enterprise which built America . . . YOUR AMERICA!

Excerpt from the "Your America" radio program saluting the grain industry.

J. L. Welsh, Omaha

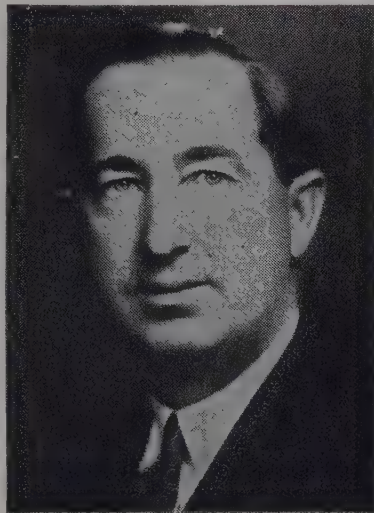
**Butler-Welsh Grain Company
President of the Grain and
Feed Dealers National
Association**

"It is true that the vast grain industry of America has grown from small beginnings. But that merely serves to emphasize the greatness of the industry today. One wonders if our forefathers, when they brought their few precious sacks of grain across the Atlantic, could possibly have imagined the magnitude of the yield from that grain within a few generations.

Surely, they could not have fathomed the importance of our grain yield today. For not only does America's grain make her a truly independent nation in time of peace and a formidable power in time of war; but through the new science of chemurgy, our grain gives promise of new frontiers to be won in the post-war world.

Already we have begun to find uses for grain of which our fathers never dreamed. We are converting grain into alcohol, rubber, plastics, smokeless powder, vegetable oils, medicinals, dry and many other products; and at the same time, after these products are taken from the grain, the residue loses practically none of its value as a feed for livestock.

All this is possible because our pioneer fathers had the courage and initiative to plant their crops and put their faith in Nature. The proof that they were right lies in the results of their enterprise which we see today. Men who till the soil need no theory, no plan for success other than the good old-fashioned principle of individual enterprise; and the men who market and mill and sell grain and grain products have seen a great industry built on that principle. I know that in this conception of America's greatest asset, we of the grain industry are on common ground with the Union Pacific Railroad. The first transcontinental railroad, built on the firm foundations of private initiative, opened up the vast grain fields of the West, and made it possible for the settlers to reach new homesites and to send their harvests back to the eastern markets. Ever since those early days, Union Pacific has been a friendly and constructive partner to the men of the grain industry, and it is an honor for me to speak on behalf of the Grain and Feed Dealers National Association in congratulating Union Pacific in its seventy-fifth anniversary year."



of business, ends in monopoly which in turn gives inefficient, unsatisfactory and expensive service. So the people who at the time may have rejoiced at the somewhat lower prices and costs, in the end invariably are exploited, and pay a bitter price.—Henry Latimer.

"Sitting on my GI bed,
My GI hat upon my head,
My GI pants, my GI shoes,
Everything free, nothing to lose,
GI razor, GI comb . . .
But GI wish that I were home."

Lake Shipments Jump

With plenty of surplus shipping space available, grain shipments down the Great Lakes out of Duluth-Superior continue heavy as the navigation season nears its close. Total lake shipments for the season were approximately 87,482,217 bu compared to 33,283,495 last year when space was tight. Another 25,000,000 will move prior to the annual Dec. 1 close.

Heaviest Lake Movement

Although last year lake movement of Canadian grain from Fort William and Port Arthur set a record for the war years, the current down-the-lakes figure exceeds it by nearly 100,000,000 bu. Last year 187,741,640 bu moved up to the middle of last month as compared with 279,908,194 bu this year.

Every man is like the company he is wont to keep.

Some Industry!

One out of every four plants in America is processing food. One out of every three retail stores is a food outlet. One out of every five adult Americans earns a livelihood in the food industry.

Receives "A" Award

The management and the employees of the Tri-State Mfg. Co., Rapid City, S. D., were presented with the War Food Administration's coveted Achievement "A" Award flag recently for an outstanding record of food production.

Dermatitis An Occupational Disease; T. B. Incident Nil.

The Ontario Workmen's Compensation Board has seen fit to include various types of Dermatitis as an occupational disease for grain elevator workers.

Just recently the Ontario Government has conducted a clinic surveying all elevator workers for traces of T. B. with especially designed X-ray equipment, and so far as we could learn they did not find even the normal number of cases amongst these employees. From this it would appear as though grain dust were a cure for T. B.; at least it certainly is not very harmful if at all.


Outward irritations from grain dust, however, might be slightly different and so the Board has decided that grain itch and other irritations should not be excluded from compensation benefits.—L. C. Irwin, Supt., Searle Grain Co. Ltd., Fort William.

Carloadings Off 4.2%

Carloadings of grain and grain products during the four week period reported showed a decrease under those of last year of only 4.2%, according to the Association of American Railroads. Figures for the weeks ending on the dates shown below totalled:

	1944	1943	1942
Sept. 23	49,832	53,214	47,948
Sept. 30	50,025	53,496	50,557
Oct. 7	45,550	59,423	51,073
Oct. 14	49,997	61,474	50,463

The 1944 figures are 16.7% higher than those of 1942.



"OUT OF A CLEAR SKY"

COME DESTRUCTION AND DEATH!

Dust Explosions are NOT "*Dated.*" They are *Due* to Appear *ANY* Instant That Conditions Are Ripe to Touch Off a Blast. *You* Know That Their Horror-"History" Is Written in Smoke and Fire!

Mounted on Your Elevator Legs, Robertson Safety Ventilators Continuously Vent Dangerous Fine Dust with Automatic Gravity Action. In the Event that a Primary Explosion Develops it is Ushered *Outside* Through the Robertson Vent — thus *Pre-*Venting the Spread of Destruction by Disastrous Secondary Explosions.

Be *Prepared!* Play Safe With Robertson Safety Ventilators. Write Today for Descriptive Literature to

H. H. ROBERTSON CO.

Farmers Bank Bldg.

Pittsburgh, Pa.

WALKED INTO OPEN ELEVATOR SHAFT

Wilber Holte Dies Instantly

WILBUR S. HOLTE, Assistant Superintendent at the Milwaukee Elevator, Kansas City, walked into an open elevator shaft about 4:30 on the afternoon of Aug. 29th, falling approximately 95 feet to instant death. He had gone up to the bin floor to get some samples after all of the men were supposed to have left for the day. The gate, not of the safety type, was left open. Then somebody moved the elevator to a floor above. Wilbur came back and apparently thought the passenger lift was still there, walking directly into the shaft.

The Kansas City SOGES Chapter held a special Memorial service at their meeting last month with Mr.

Holte's son as their guest, at which time Claude Darber read the following fitting tribute to the memory of the deceased.

In Memory of Wilbert Seifert Holte

MR. CHAIRMAN, Superintendents, and Guests: Since our last meeting we were shocked by the untimely death of our friend and fraternal brother, Wilbert Seifert Holte. Born July 4, 1892, in the state of Kansas, he grew to young manhood on his father's farm.

In 1917 he answered his country's call and joined the army. He saw service overseas and was wounded by gunshot in the arm; also was gassed.

After his return to civilian life he was united in marriage with Miss Gertrude S. Lindberg. To this union two children were born. Wilbert Seifert Holte, Jr., and Norma Jane Holte, both of the home in Kansas City, Mo.

He spent twenty-five years in Grain Elevators. Beginning with a period of vocational training at the Murray Elevator, he next went to the Milwaukee Elevator as house inspector. After two years he was promoted to the position of Assistant Superintendent



which position he held at the time of his death.

A tragic accident cast a pall of sadness over all who knew him—especially those who are engaged in the same vocation. We sorely miss him. Yet through our sadness comes the memory of the ready smile and jolly laugh that were so much a part of him—the friendly handclasp with which he always greeted us. As a member of the Society of Grain Elevator Superintendents, he was a faithful attendant at the meetings. As an officer of the Kansas City Chapter he performed his duties cheerfully and efficiently. But God took him from us.

Gentlemen, in honor of his memory let us stand and face the empty chair that he will not use again. There probably is in the mind of each one of us some particular incident by which he will remember him, but we all have one thought in common—"He was a good friend and a faithful worker."

Now let us bow our heads in sub-

mission to God's will while we remove the chair, symbolic of our recognition of the divine plan—"That the individual may pass through the vale, but earthly life continues to live on." In this solemn moment let us go to the throne of our heavenly father in prayer.

MAN LIFT SAFEGUARDS

During the last two years there have been a considerable number of fatal accidents on the continuous running man lifts. This is not surprising, as they are inherently so unsafe that I doubt that the addition of any safeguards will make them even "reasonably" safe.

I have heard the excuse offered that "they are carrying very few persons and therefore one need not be too fussy about safety." It is true that compared with large passenger lifts there are comparatively few of these in operation and that each carries just a few persons comparatively per day, but this is a positive proof of the danger, particularly considering the relatively large number of fatal accidents.

These continuous running man lifts are in effect an attempt to imitate an "escalator." The modern escalator is provided with every conceivable safeguard to protect passengers, but in spite of all this, minor accidents do occur, although no fatal accident has happened during more than forty years of escalator operation.

The other type of man lift, namely, the counterweighted, is really an elevator, and there is every reason for using a traction drive as well as providing the principal safeguards required for elevators. Just because some of these are operated infrequently and usually carry only one or two persons at a time is no reason why proper safeguards should not be provided, particularly as the additional cost would be relatively small.

Switch Locks

Several of our best brains have been working on the problem of quick means of locking switches. Some of the ideas are still in the stages of development, but one inventive soul sent in an excellent idea for one type of Allen Bradley switch.

We haven't gotten a good picture of this one, but we will try to describe it:

To the right and a little above the "start" button, a pin is placed through the cover of the switch. Inside the box, a thin, flat strip is fastened on the end of the pin in such a way that by rotating the pin, the strip fits into a groove cut in the "start" button. When the "stop" button is pressed in, the "start" button comes out. This strip of metal swinging edge-wise into this slot holds the "start" button in the "out" position. This button cannot be pressed in nor can the cover be removed without forcing it.

On the outside of the cover, a half moon of metal is fastened in the end of the pin. The edges of this metal are turned up to form a crescent-shaped edge. Through this turned-up strip, holes are drilled for the staple of padlocks. On the top of the pin, a small handle is fastened to allow easy turning.

A matching strip of curved metal with matching holes is welded to the case on the outside circumference of this crescent shape on the pin and so arranged that all the holes match when the device is locking the switch.

By swinging the handle to the left, the metal strip frees the "start" button.

This idea gives us a quick method of locking this type of switch. The inventor is to be congratulated on this swell idea.—George H. Steel.

ACCIDENTS HELP THE AXIS

DON'T LET AN INJURY PUT YOU ON THE SIDELINES!



NATIONAL SAFETY COUNCIL

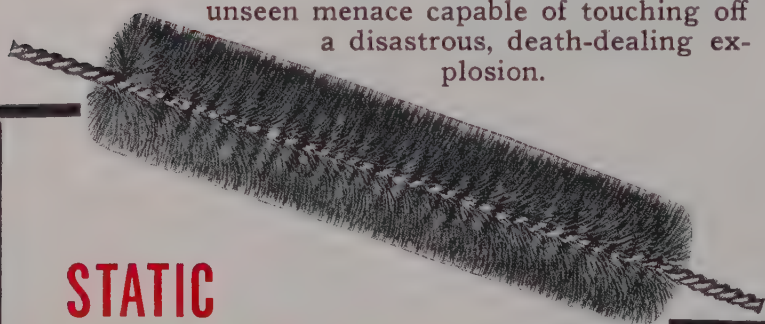


YOU HAVE A RIGHT TO BE *Scared* **STIFF** OF *Static!*

Listen to what David J. Price, an authority, has to say on the subject: "*Static Electricity must be recognized as one of the prominent causes of dust explosions.*"

Another authority, C. J. Mitchell of the Mill Mutual Fire Prevention Bureau recently stated that *dozens of dust explosions have been definitely traced to static charges as igniting factors.*

Mill and elevator belts running over pulleys create hazardous static charges, often as high as 4500 volts. A lurking, unseen menace capable of touching off a disastrous, death-dealing explosion.



STATIC ELIMINATOR BRUSH "A Lightning Rod For Belts"

Made up of thousands of fine, durable brass wire bristles interwoven between two heavy copper wires, the Static Eliminator Brush gathers static, breaks it down and grounds it . . . renders it absolutely harmless.

Easily and quickly installed on any belt and approved by Mill Mutual

Fire Prevention Bureau when properly installed and grounded.

Heed the warnings of authorities. Protect life and property against dangerous static. Avail yourself of this low cost, urgently needed safety measure, *now*. Write for details, today.

Send, too, for the big, new 1944 Seedbuero Catalogue, if you have not already received your copy. Packed from cover to cover with money saving values in modern equipment.

SEEDBUERO EQUIPMENT CO.

626 Brooks Bldg.

Chicago 6, Ill.

Safety Stunts

A stunt to get employees to wear safe clothing: Borrow the "Bank Night" idea from the picture shows. Put up a cash prize each week. A different day each week (no one knows when) put all of the employees' names in a hat and draw one. Walk right out and find that employee. If he or she is dressed properly, hand the employee the money. If not dressed properly, double the amount the next week.

Properly dressed means good safety-toed shoes, no rings or jewelry, no cuffs on trousers or rolled-up sleeves or loose clothing. If the employee is performing a job that requires goggles or respirators, these must be on at the time. Female employees must have their hair fully covered.

A stunt on eye tests: Place a regular eye test chart on the wall and draw a line 20 feet away. Post a sign telling how to cover the one eye at a time and let employees test their own eyes. This one has worked wonders in getting employees to obtain glasses.—Geo. Steel.

Tools In Bins

One contributor tells us how he keeps men in bins from dropping their tools and running the risk of suffocating a man while recovering the tools from the bottom of the bin.

Each tool used by a man working in a bin has a rope securely fastened to the handle, and these tools are suspended below the seat on the hoist.

In this manner, the tools are lowered into the bin ahead of the man and come out after he does.

Our informant says that he doesn't know who first thought of the idea or when. Regardless of the donor of this idea, it is a mighty good one and should be adopted at every plant.

A man at one narrowly escaped suffocation in a bin a few weeks ago when he dropped a hoe and was buried in meal while trying to recover it.

When Peace Comes

With a change in the man-power situation, which is bound to follow the fall of Germany, people's attitude is likely to change. This should be reflected in our safety record.

Since the end of 1941, all grain industry establishments have been through a nightmare. For the first time there are prospects for a brighter year. Things may actually get worse for a while, but we may be better able to bear them knowing that relief is in sight.

We predict an improvement in our safety record for the coming year. The period of war hysteria will be over and people will recognize things for their actual value again.

May 1944-45 will be a year of victory and a safer year for our employees.—George Steel, St. Louis.

SCHOOL THE NEW MAN IN FIRE FIGHTING

EFFECTIVE "first aid" fire fighting requires the use of a suitable extinguisher on each different class of fire. There are three classes of fire, each determined by what is burning; and for each class there are appropriate extinguishers.

Fires in ordinary combustible materials, such as wood, paper, rubbish, etc., are known as CLASS A fires. They are best put out with water, which has a cooling and quenching effect. Extinguishers which contain water or chemicals and water are the soda-acid, foam, pump tank, gas cartridge and loaded stream types.

Vaporizing liquid and carbon dioxide extinguishers also are effective for controlling small Class A fires, if the fires are not deep-seated and if there are no strong air currents to dissipate the vapor or gas.

Fires in flammable liquids, solvents, grease, etc., are known as CLASS B fires. Here a blanketing effect is essential, to cut off the oxygen supply. Suitable extinguishers are foam, vaporizing liquid, carbon dioxide, and loaded stream.

Fires in electrical equipment, CLASS C fires, require the use of extinguishants that will neither damage equipment nor convey an electrical charge along the hose stream to the operator. Vaporizing liquid and carbon dioxide extinguishers are suitable for use on fires of this class.

In some cases, however, fires in electrical equipment may be such that the quenching and cooling effect of large quantities of water is necessary. In such cases, the equipment should be made electrically dead before water or water solution is applied.

Your Extinguisher Tells You

THE Underwriters' Laboratories label on every approved fire extinguisher indicates the class or classes of fire for which that extinguisher is considered suitable and the number of such extinguishers considered necessary to comprise one unit of protection. Thus, a 2½-gallon foam extinguisher is designated "A-1; B-1," meaning that it is approved for use on both Class A and Class B fires, and that one such extinguisher is required to make one unit of protection.

These units of protection are standards that have been established by Underwriters' Laboratories for convenience in measuring the relative fire protection afforded by different kinds and sizes of portable fire extinguishing appliances.

The number of units of protection required in any given location depends upon the relative severity of

the incipient fire to be anticipated. The National Fire Protection Association recognizes three general classes of occupancies—light hazard, ordinary combustible and extra hazardous.

A guide for determining the number of units of protection required for each class of occupancy has been worked out. For instance, a place where fires of average intensity may be anticipated should have units so located that a person will not have to travel more than 50 feet from any point to reach the nearest unit, but at least one unit will be required for each 2,500 square feet of floor area.

The inspection department having jurisdiction usually will determine the degree of hazard of a given occupancy. Further information is contained in a pamphlet entitled "First Aid Fire Appliances," published by the National Board of Fire Underwriters, 85 John St., New York, N. Y.

Trophy Winners Announced

Grain processing plants just awarded safety trophies for perfect records by the National Safety Council in the order of their man-hours, includes: Corn Products Ref. Co., Argo; Ralston-Purina Co., Davenport and Wilmington; General Mills, Amarillo, El Reno, and Los Angeles; Kellogg Co., Battle Creek, and Jos. E. Seagram & Sons, Lawrenceburg.

Certificates of Merit went to Corn Products at Kansas City; General Mills at Chicago, Buffalo and Vallejo; Schenley Distilleries, Lawrenceburg, and Jos. E. Seagram & Sons, Louisville.

Smothered In Grain

Charles Marino, 61, was trapped under an avalanche of grain when he entered a bin at the plant of the Acme Feeds, Inc., in Chicago. He entered to clean the bin.



From National Safety News
Published by
The National Safety Council

Highest Honors

U.G.A. Awarded U.S. Coast Guard

"Shield of Security"

IT'S not usually considered smart to go out looking for trouble, but the U. S. Coast Guard looks for trouble night and day all along tidewater, the Great Lakes, and our navigable canals and riverfronts. And that's smart, for it has helped prevent the great inland port city of Chicago, for instance, from suffering a single major waterfront fire since the war began.

Lined with vital war facilities, grain elevators, flour-feed-cereal-soybean mills, malt, yeast and linseed plants, corn starch and sugar refineries, et al., the Coast Guard is responsible for the security of all U. S. ports such as Chicago, for patrolling harbors, protecting facilities from

sabotage, accident, fire, for inspecting protective systems, etc.

Eleven waterfront grain handling and processing plants in Chicago, the largest having a storage capacity of 10,-750,000 bus., are given a monthly inspection by the Underwriters' Grain Association's capable representatives pictured, in co-operation with the Coast Guard port security patrol. Inspection of these properties is more frequent than of others because they can hardly be saved from fire once it attacks, and fire prevention is their only protection.

Aids War Effort

IN RECOGNITION of the outstanding work of the well-known men presented, the United States Coast Guard presented the Security Shield of Honor to them on Oct. 11, for outstanding co-operation in protecting ports against fire, negligence and sabotage. Amid impressive ceremonies held in Chicago's city council chambers, with Mayor Kelly and other notables in city, Coast Guard, and fire-fighting fields present, Commander Petter G. Pettersen awarded the Underwriters' Grain Association and the City of Chicago these unique plaques.

"For important contributions to the Port Security program of the United States Coast Guard," the award reads, "... thus making possible the safe and uninterrupted flow of our country's manpower and war materials to the battlefronts of the world and the hastening of the day of Victory for the United Nations."

Formed early in the first days of World War I, the Underwriters' Grain Association is a body of 83 insurance companies specializing on grain trade risks in the Middle West. All risks are inspected monthly by the well known men pictured, viz., Leonard Berg, left, inspector; Frank E. "Slim" Carlson, standing, inspector, and Manager Charles E. Harbin. "We feel," says Mr. Harbin, "that a great deal of the credit accruing to UGA belongs to those whose facilities we inspect regularly, for without their splendid co-operation our task would have been impossible. We know everyone will continue helping such an important cause."

ELECTRONIC THEORY OF DUST EXPLOSIONS

By William H. Feemster, Baltimore, Retired

COULD there be a possible connection between the many disastrous dust explosions and the complicated electrification of the modern elevator?

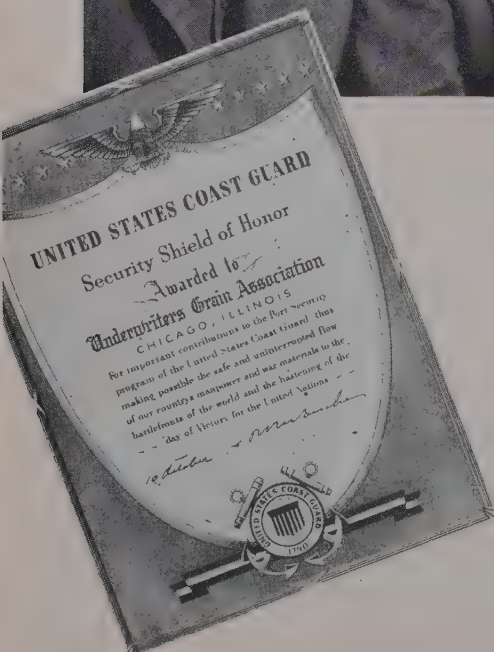
Looking back some years to the days when I started my elevator service, the elevators were all of wood construction, operated by steam engines, and lighted by coal oil lamps and lanterns of the hay burner type.

On dark days or for night work the weighers, spouters, shovelers and in every part of the elevator the men carried these hay burner open flame lanterns around with them for light—even took them down into a dusty, empty bin to clean it out and so far as I can recall we never heard of a dust explosion so consequently had no fear of them.

I wish to add here that through lack of ventilation and from other causes the elevators then were far more dusty and dirty than they are today.

Explosion Incident Away Up

BUT during the last ten or fifteen years, with the modern concrete, tile or steel construction all electrified elevators, the loss of life, injury and property damaged throughout the in-



dustry has been terrible. This is particularly true the past two years.

My thought is that the modern elevator of reinforced concrete construction, all electrified with its conduits filled with high voltage wires running all over the building, added to the steel reinforcing in the concrete, makes the whole building grounded together in one solid unit.

With these facts in mind, I believe there is some (as yet undiscovered) force from the high tension wires being thrown into the air in the elevator which, in some way charges the floating dust or the dust that is allowed to accumulate in the plant, so that when all the known factors and conditions are ripe for an explosion this unknown force makes it possible for the most minute spark of metal, flint or static to set the explosion demon loose. Where he will stop is in the hands of God.

HOW TO GET TO KNOW YOUR FELLOW-WORKERS

1. Save your operating dollars if you can, but don't save your words or gestures of friendly fellowship.

2. Use your fellow-worker's name whenever possible. (Some big organizations would make surprising progress if more of their Brass Hats would stop "mister-ing" one another, to say nothing of stopping it farther down the line.)

3. Take a few minutes off to learn some of the greetings used by your Polish, Russian, Italian, or other foreign-born employees.

4. Break the ice by asking about the man's new machine, the details of his operation or his length of service—in short, his job. If you are a good listener, the rest will take care of itself. He sees his world as much through the eyes of his work as you do.

5. If you "have no time," tell your assistant to keep, say, Wednesday afternoons free of conflicting engagements. (While you're about it, have him push you to acknowledge any and every letter.)

6. Don't expect your subordinates to take time to know their workers well because you request it ONCE. No boss but learns to give his attention solely to those items about which his boss asks oftenest.

7. Don't trust your memory—or let any subordinate trust his—to fulfill an employee's request. He takes failure to "come through" not for forgetfulness, but for insincerity, if not plain dishonesty.

8. Don't be surprised by bad tempers if your conferences are always held in noisy rooms.

9. Don't depend for keeping in touch with your down-the-chart associates on the chance meetings of locker room or elevator. Throw a few half-business, half-social dinners. Or organize an Old-Timers' Club where chart lines are rubbed out by service terms.

10. Make sure your promotions don't depend on the acquaintanceship of earlier years or on fellow-memberships in bowling team, and such like.

11. Beware of learning "public" opinion from fellow Big Shots encountered at your local club.

12. Put into a few of your pockets a memo labeled "Nobody loves the monologist!" ("There are two kinds of executives—those who listen and those who don't.")

13. Don't let fear of "unfair labor practice" keep you from occasional use of microphones for discussing your war and post-war problems with your people. Their lives depend upon the answers as much as your life does—if not more.—*Factory Magazine.*

WELL

First Gal: "I wish to express my sympathy on the loss of your husband."

Second Ditto: "Silly goose, he's at home and very much alive."

First Gal: "So is your maid."

C. C. C. Fumigants Plus Practical Application — GET RESULTS!

Over 4,200 EVER NORMAL granary bins treated in 1943—8½ million bushels of wheat with guarantees against all insect infestation and against re-infestation for a ten-month period.

Largest Grain Fumigation Contract Ever Undertaken



Fully Equipped For Any Fumigation

Contract awarded July 1. 360 bin sites over 6,500 square miles. First fumigation completed all bins August 26, 1943. Only nine bins graded live weevil under U. S. Grain Standards at expiration of contract.

COOK CHEMICAL CO.

2020 Wyandotte Street Kansas City 8, Mo.

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The Cost is **SMALL**
compared with the
PROTECTION You get-



IT is well known that the explosive power of grain dust is many times that of dynamite. In comparison with the possible loss of property (and even life) often caused by dust explosions, the cost of dust control installations is very small indeed.

Let DAY figure on Your Complete DUST CONTROL SYSTEM

DAY facilities include engineering, fabrication and installation of entire system—including Dual-Clone Dust Collectors, pipings, fittings, dust tanks and all other sheet metal work of standard or special nature—big or small.

DAY DUAL-CLONE DUST COLLECTORS



This patented DAY development—with its low resistance and high separating efficiency—is the key to the uniformly successful operation of DAY DUST CONTROL Systems. Its compact design saves space and greatly simplifies installation.

Important information for you in our booklet "DAY DUST CONTROL." Write for a copy.

THE DAY COMPANY

814 Third Ave. N.E.

Minneapolis 13, Minn.

In Canada: The DAY CO. of Canada, Ltd.

Car Unloading Meeting

The Chicago SOGES Chapter held a special car-unloading session this month, commencing with an inspection of The Glidden Co.'s automatic shovel rig in operation. "Uncle Henry" Richardson timed the unloading of two cars at 46 minutes; found the double automatic shovels took 74 trips, and the Clark cleanup shovels 76 trips to do the job.

Most of the forty present adjourned to the nearby Lion's Club to partake of a sumptuous dinner provided by Don Bowden of Materials Handling Equipment Co., manufacturers of the Glidden unloader. The after-dinner program presided over by Prexy Steve Halac of The Glidden Co., included talks on all kinds of unloading devices and systems, including the Brady suction conveyor, the Fraunheim, Webster, and General Mills devices. Mr. Richardson announced the development of a semi-dumper which may be ready next spring.

The Glidden device can be worked with two men, although three were used in order to be less fatiguing. This arrangement permits such a crew to work twelve hours day in and day out, as the physical exertion was practically nil compared with present unloading methods.

In addition to Mr. Richardson, who came from Clifton, N. J., to attend the meeting, Harold Wilber of A. E. Staley Mfg. Co., Decatur, Ill., was present. New members introduced included: Sidney Cole of Industrial Erectors, Inc.; Henry Zimmer and Wm. Norwood of Bonded Exterminators, Inc.; Leon Chevallet, Spencer Kellogg & Sons, Inc.; Al Lundquist of Innis Speiden & Co., and I. H. Schrotberger of Public Service Co., Joliet. Guests included: H. A. Koster of Westinghouse Elec. & Mfg. Co.; A. J. Weiss of Brady Conveyor Corp.; Carl Meyer and E. A. Stark of Glidden Co., Carl Halach of A-D-M, and Emery Kovach of Pratt Food Co., Hammond.

To Approach Roads On Cars

A committee appointed at the last meeting of the Chicago SOGES Chapter is going to approach the railroads in an effort to work out some plan to facilitate the unloading of grain cars, including covering hopper-bottomed cars. Emery Kovach of Pratt Food Co.; Harold Wilber of A. E. Staley Mfg. Co.; E. R. Anderson of Norris Grain Co.; Sidney Cole of Industrial Erectors, Inc.; Steve Halac and Harry Hanson of The Glidden Co., and Dean M. Clark of SOGES comprise the committee.

McConnell To Screw Conveyor

Jim McConnell has joined the Screw Conveyor Corp. organization. He was formerly with James Stewart Corp., Chicago; Cereal Engineering, and Cargill, Inc., Minneapolis.

Shaws Celebrate Golden Anniversary

Mr. and Mrs. Gavin James Shaw of Port McNicoll celebrated their golden wedding anniversary this month. Until three years ago Mr. Shaw was Super of the CPR elevator here, which post he held 22 years.

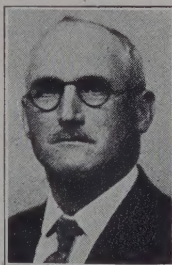
Prior to that Jim both built and managed terminal and country elevators throughout the west. A great friend of the late Chris Wood, General Superintendent of the Baltimore & Ohio R. R. elevators and founder of the Superintendents' Society, Jim Shaw holds SOGES Charter Membership No. 54—of which both he and the organization are proud.

It was through his efforts that the association held its convention at Toronto a few years ago, and his enthusiasm was responsible for enlisting the co-operation of the many who contributed to make this conclave so outstanding. Frequently a director and committeeman, Jim put his heart and soul into the Society—and even continues doing so today.

An ardent baseball enthusiast and coach, Jim also possesses the Carnegie Bronze Medal for heroism. The justly proud couple have five daughters and six grandchildren.

Larkin to General Mills

Claude V. Larkin, formerly with the Butler-Welsh Grain Co. of Omaha, has become associated with General Mills at Belmond, Ia., as soybean elevator superintendent.



Chicagoans Announce Programs

Mapping out their monthly Chapter meetings for the entire year ahead, the Chicago SOGES Chapter offers the following to its nearly 100 members:

NOV. 14—Safety in Your Plant, W. Dean Keefer, Lumbermens Mutual Casualty Co.; and Material Handling For Manpower 'Conservation, Steve Halac, Glidden Co.

DEC. 9—Associates' Night, Russell B. Maas, Screw Conveyor Corp., chairman.

JAN. 9—Ladies' Night (Swedish Club), Gil Lane, Arcady Farms Mlg. Co., chairman.

FEB. 13—Electronics and Grain Handling, Grover C. Meyers, K. C. (Mo.) Power & Light Co.

MAR. 13—Electrical Equipment & Installations, Leonard Danielson, Arcady Farms Mlg. Co.

APR. 10—Post War Problems.

MAY 8—Safety Color Dynamics, Steve Halac, Glidden Co.

JUNE 5—Tour of Albert Schwill & Co.'s plant; Pre-Convention Discussions, at Lundgren's Fish House.

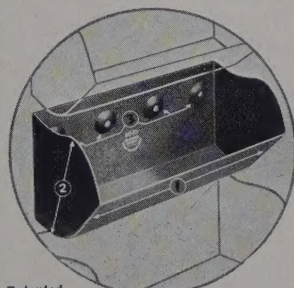
JULY 14—Golf and sports tournament.

Wheat Yield Off Trifle

A slight decrease in spring and durum wheat yields is reported by USDA this month. The bread spring wheat figure is placed at 289,470,000 bu compared with 294,000,000 a month ago. Durum production decreased from 36,000,000 to 33,287,000 bu. Total production of all spring wheat is 322,757,000 bu compared with 329,000,000 bu a month ago.

There are two parts to every battle. Do your part—buy another bond during the 6th War Loan Drive!

YOU NEED MAXIMUM EFFICIENCY IN YOUR ELEVATOR TO OPERATE AT A PROFIT!



Patented

WHAT THE DESIGN FEATURES OF

"NU-HY" BUCKETS DO FOR YOU

1. High lip positioned to scoop up a full load—retain it and avoid premature discharge.

2. High sides reduce gaps between buckets—prevent spillage going up or over head pulley.

3. Bolt holes scientifically positioned to avoid hinging action over pulleys—aiding pick-up and discharge. Indentations eliminate lock-nuts and improve traction.

Install



STANDARD OF THE INDUSTRY

Whether you handle 10,000 bushels of grain per month, or 10,000,000, you need the efficiencies of "Nu-Hy" Buckets in your elevator legs. Their design permits continuous mounting on the belt with no "loss-gaps" in between—and they're shaped to pick-up and deliver bigger loads. Capacity increases up to 100% guaranteed.

Let us analyze your present operations to reveal your capacity possibilities. Write for Form No. 76.

Screw Conveyor Corporation

707 HOFFMAN ST.

HAMMOND, IND.

ENGINEERS

HAMMOND

MANUFACTURERS

TRADE MARK REG

PRODUCTS

U.S. PAT. OFFICE

Australian Wheat For Feed

Five boatloads of wheat purchased from Australia by CCC to augment the U.S. feed supply recently began arriving at West Coast ports. Unfortunately there proved to be insufficient storage space to protect the grain from the rainy season about due and 1,500,000 bu was piled outside.

Drowned In Grain

While Robert Homann, 20, was standing in a tank of grain in the Kellogg Co.'s Omaha plant Sept. 1, the operator of the mixer released the grain, sending both through the blades.

Wheat Grind Jumps

During August 1,006 mills ground 46,670,552 bu wheat, compared with 42,342,335 bu ground by 1,002 mills the previous month, and 42,827,642 bu ground by 1,001 mills the year before. Of these mills 197 with a capacity of 1,601 sacks daily and up produced 84.7% of the flour.

Corn Crop Sets Record

The greatest yield of corn is reported by USDA. The figure is 3,196,977,000 bu. The previous high was in 1942 with 3,131,518,000 bu. In 1943 corn production reached 3,076,000,000 bu. The 10-yr average is 2,369,000,000.

Grain to Alcohol

Of the 9 months total of 112,000,000 bu grain used by industrial alcohol manufacturers from their yearly allocation of 158,000,000 bu, wheat accounted for 76% or 85,120,000 bu; malt 9.9% or 11,088,000 bu; rye 5.2%, and grain sorghums and miscellaneous grains 5.2% or 5,824,000 bu each, and corn 3.7% or 4,142,000 bu. The conversion of distilleries to full grain used by Jan. 1 will effect 30% of the industry's capacity now using sugar. Two and a half gallons of molasses are usually needed to produce one gallon of 190 proof alcohol, and one bu wheat produces 2½ gals alcohol.

Through Windy Village

Chicago visitors this month included James Auld, Hales & Hunter Co., Sec'y Minneapolis Chapter; John Larkin of Moore-Seaver Grain Co., Kansas City; Arthur B. Osgood, The Day Co., Minneapolis; Vincent Blum, Omaha (Neb.) Elevator Co.; Malcolm Noxon, Minneapolis, and Frank A. Peterson, who recently left his affiliation with the New Jersey Flour Mills at Clifton, journeyed to Seattle for a month, and then hied himself right back to his old stamping ground around Baltimore.

Minneapolis Chapter Active

Featured speakers of the Minneapolis SOGES Chapter's November meeting include Robert G. Cargill, Jr., President of the Northwest Country Elevator Ass'n, who will cover the subject of "Country Elevator Problems," and George R. Jones, Industrial Electric Co., who will lead a roundtable discussion on "Problems of Electrical Installations." Both are SOGES members.

According to Chapter President Cliff MacIver, A-D-M Co., Mr. Jones will present a prize to the person presenting the question creating the most enthusiastic discussion . . . Following their usual procedure it was Hart-Carter Co.'s turn to prepare the announcement of this affair, and they did a fine job, as did "Milling Production" in announcing W. L. Harvey, Regional Car Service Director, Association of American Railroads, who spoke before the group on Oct. 2 on "Factors Influencing Grain Movements."

Harry Wilson Dies

Harry C. Wilson, 64, general manager of the Saskatchewan Pool elevator at Buffalo died Oct. 7th at his home. He had long been identified with the grain business and was one of the cordial SOGES hosts when their convention was held there.

If war bonds do not appeal to you as a safe investment, then the United States is not a safe place in which to live. If the United States failed, what do you suppose your hoarded cash would be worth?

"LET'S LOOK AT THE RECORD!"



In a belt it's performance that counts! Opposed to claims, IMPERIAL offers results and our only sales ammunition is outstanding performance records established over a period of nearly four decades.

Despite war conditions, REXALL belt still possesses these advantages for you:

PREWAR QUALITY!

PROVEN PERFORMANCE!

PROMPT DELIVERIES!

LOW ULTIMATE COST!

Best evidence that we "deliver" is the fact that many have used our belting continuously since 1910. It will pay you to "LOOK AT THE RECORD." Let us send you the FACTS.

IMPERIAL BELTING COMPANY

1750 S. KILBOURN

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Omaha Sups Meet

Our Chapter discussed the automatic shovel at some length at our last meeting. We also discussed the government's fuel efficiency program, but as we are all electrified we agreed to save electricity where possible.

We discussed the proposed change in the association's name, but did not come to any decision. We did advance our election date to correspond with other chapters, however. Charles E. Harbin and Frank E. "Slim" Carlson of the Underwriters' Grain Ass'n will address our Nov. 14th meeting, at which we anticipate an unusually large crowd.—Charles P. Walker, Chapter Pres.

Many Changes at Omaha

Verner Clark left Nebraska Consolidated Mills Co. to take a war job. His present address is 9726 7th Ave., Inglewood, Calif.

Carl Talmon joined the Farmers Union at Omaha, which firm bought the Loveland Grain Co.'s terminal at Lincoln. [Supt. Carl Richardson is now a sampler for the USDA at Portland, Ore.] The firm operates several country houses in Nebraska as well.

Soren Sundell of the Denver plant succeeded Carl Talmon at Omar Mills, Inc.—Charles F. Walker, Pres. SOGES Chapter.

Winter Cargo to Exceed Elevator Space

There is a possibility that the winter storage fleet that ties up at Buffalo this fall will hold more grain than all the commercial elevators along the waterfront. The 604 ft. "Cadillac" tied up Oct. 12 with the first cargo of 420,013 bu wheat, and the barge "Sagamore" added another 198,000 bu to that figure. At least 100 vessels are expected, which will break all records, caused by the demand for grain from eastern consumers, the allies, and liberated countries.

Kansas City Chapter Active

The Kansas City SOGES Chapter opened its series of fall-winter-spring meetings on Sept. 19th with 28 present, states President Jim DeJarnette of Continental Baking Co.

William H. Kamp of Ralston-Purina Co. opened the meeting on "Plant Safety" and then chairmanned the presentation of safety trophies won by E. B. Goughnour of Uhlmann Elevators Co.'s Rock Island Elevator, Ft. Worth; by Guy Ferguson of Uhlmann Grain Co.'s Wabash elevator, Kansas City; by Tom G. Burris of Uhlmann Elevators Co.'s Katy elevator, Ft. Worth; by C. P. McWilliams of Kansas Elevator Co., Topeka, and by Ralph Garber, Enid Elevator Corp., Enid. Ted Manning, General Super for the Uhlmann interests, surely has ample reason to be proud of the splendid records his men turned in.

K. C. Meets 3rd Tuesday

We have picked the third Tuesday of each month as our meeting date. For the past year or more we have been holding forth at the Pickwick Hotel, with dinner at 6:30, meeting from 7:30 to 9:30.

Our November 21st meeting will feature a paper by Mr. Heartsill Banks of Ralston-Purina Co. on "The Soy Bean." He is manager of this company's soya bean department. Our December meeting, which is usually sponsored by our bosses, has not been fully settled as yet. Our Jan. 16th meeting will feature talks by Charles E. Harbin and Frank E. "Slim" Carlson, both of the Underwriters' Grain Ass'n of Chicago. Several of the boys here say they are beginning to see daylight again, though pretty much worked out.—Jim DeJarnette, Pres.

Corn Grind Drops

During September the 11 corn refiners ground 8,797,169 bu corn for domestic consumption, as compared with 9,708,196 bu the previous month and 10,281,142 bu a year ago.

McElevey to Winnipeg

Clark A. McElevey has opened a Winnipeg office for The Day Company of Canada in the McIntyre Block. Thoroughly schooled in the Minneapolis office under the tutelage of Arthur B. Osgood, foremost dust collection expert, "Mac" is well known from the many installations he has so capably put in throughout the continent. His many friends will wish him well.

Even In Sunny California

Since I left the employ of the Nebraska Consolidated Mills Co. of Omaha and came out here to look around I have missed getting "GRAIN" very much. Enclosed is my subscription which I hope will cover the cost of sending it to me regularly out here.—Verner C. Clark, 9726 7th Ave., Inglewood, Calif.

Explosion Takes All

A dust explosion in the grain elevator and milling plant of the Smith Milling Co. at Bountiful, Utah, demolished everything on Sept. 12.

Let's give the boys at the front a hand! Do your share in the 6th War Loan Drive!

SUPERINTENDENT WANTED for Soybean Processing plant in Illinois; or experienced Expeller operator who can handle men, maintain machinery and production, competent to fill position of Superintendent. Good opportunity for man with right education, experience and character. State full information in first letter. All replies confidential. Address 1-S-1, % "GRAIN," 2800 Board of Trade, Chicago 4, Ill.

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T O B U Y

**Two 6x17 Square
Sifters and**

**Two 32"x8'0"
Differential Reels**

Please Give:

1. Make? Purchased New or Used?
2. Present Condition? Location?
3. Period of Use? When Available?
4. Bottom Price and f.o.b. point?

**ILLINOIS CEREAL MILLS, INC.
PARIS, ILL.**



SETTING NEW HIGHS IN CAPACITY

From small country elevators, large terminal elevators and flour mills all over the continent come glowing reports of record breaking increases in capacity effected by the

CALUMET SUPER CAPACITY ELEVATOR CUP

You, too, can rely upon the elevator bucket with the Logarithmic curve for far greater efficiency and economy.

Write for form 35. Learn how much greater guaranteed capacity you can get from your elevator legs.

B. I. WELLER CO.

327 S. La Salle St.

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IT TAKES

Efficient

HANDS

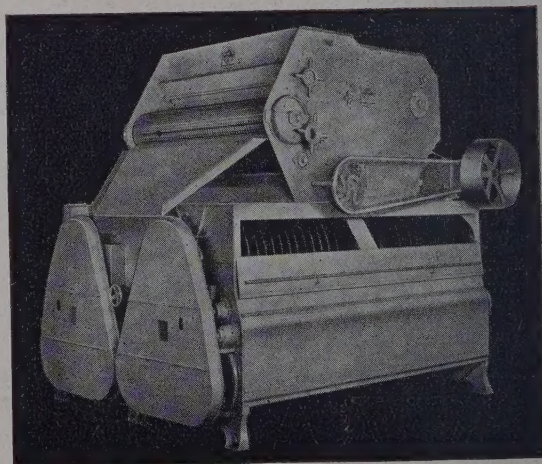
for BREADMAKING



And it takes

**Efficient Machinery
For the Cleaning of the Grain!**

Good bread can't be baked without hands experienced in the art of breadmaking—hands that can control such vital factors as flavor, texture, volume, nutritive value. Similarly, grain can't be processed properly without the right equipment to work with—equipment that will separate mixtures such as wheat and barley, that will reduce dockage, remove dust and screenings, raise test weights, and condition grain in storage. Every grain handler is in vital need of such equipment to be able to contribute most efficiently to the vital food program. For top performance in the various grain-cleaning factors that mean thoroughness, flexibility and capacity, insist on the many exclusive features to be found only in the Carter Disc-Cylinder Separator. Investigate this great cleaner. Write for priority information.



Widely accepted by terminals as the most adaptable and thorough big capacity cleaner on the market is the 2564 Carter Disc-Cylinder Separator shown above. Extremely compact, requiring low headroom, this machine performs in one operation five major separations plus scalping and aspiration. It cleans barley thoroughly, separates spring wheat from durum, is widely used for cleaning oats as well as wheat, durum and rye. All-metal, all-enclosed, low in power requirements.

HART-CARTER COMPANY

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Minneapolis 13, Minn.